

REMARKS

The specification at pages 16 and 23 has been amended to correct obvious, inadvertent errors.

As claimed in amended claim 1, the fluorine-containing compound is at least one fluorine-containing organic silane compound selected from compounds (a) to (d) or is selected from compounds (e) and (f). The fluorine compounds (a) to (d) have been further limited to the structures shown in amended claim 1.

The chemical formulas of the compound (a) find support at page 17, lines 8-21 of the specification. Rf-A-SiX_3 and Rf-O-A-SiX_3 are not explicitly described, but are easily derived from this paragraph and explanations for the compounds (b) to (d). Further, the branched perfluoroalkyl group is described as having 3 to 5 carbon atoms (as opposed to 5 or less carbon atoms), because a branched perfluoroalkyl group cannot have 1 or 2 carbon atoms.

The limitations as to compounds (b) and (c) find support at page 18, line 23 to page 19, line 3 of the specification [for the compound(b)], and at page 21, line 16 to page 22, line 1 of the specification [for the compound (c)].

The chemical formula of the compound (d) finds support at page 22, line 15 to page 23, line 12 of the specification. The formula: Rf-A-Z-A'-SiX_3 is readily derived from this paragraph. The phrase “a urethane group, an ester group, an ether group or an amide group” is described in original claim 1 and at page 22, lines 9-10 of the specification.

A “hydrogen atom” for the X group is supported by “a silane group ($-\text{SiX}_3$ (wherein X is a hydrogen atom, a halogen atom or an oxyalkyl group (having 1 to 4 carbon atoms)))” (page 16, lines 22-24 of the specification).

Claim 1 excludes Comparisons A, B, C and D of the Rule 132 Declaration. Each of the fluorine-containing compounds having the linear perfluoroalkyl groups indicated in Comparisons A, B, C and D does not correspond to the compounds (a)-(f) (particularly, compound (a)) as defined in amended claim 1. Claim 6 has been canceled as not further limiting the subject matter from claim 1 from which it depends. Claim 17 has been amended to conform to the amendment to claim 1.

Withdrawn claim 7 directed to a method for producing an anisotropic material has been amended to include all of the limitations of amended product claim 1. If claim 1 is found to be allowable, Applicants respectfully request rejoinder of withdrawn method claims 7 and 8 pursuant to MPEP § 821.04.

In response to the rejection under 35 U.S.C. § 112, first and second paragraphs, claim 18 has been canceled.

Review and reconsideration on the merits are requested.

Claims 1-6, 15 and 16 were rejected under 35 U.S.C. § 102(b) as being anticipated by JP 2002-023356 to Ishida (JP '356). Claims 17 and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '356, in view of either JP 2001-284289 to Ishida (JP '289) or JP 2001-284274 to Furusawa (JP '274). Claims 1-6, 15 and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '356 in view of EP 1041652 to Katz et al (EP '652). Claims 17 and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '356 in view EP '652, further in view of either of JP '289 or JP '274.

Ishida was cited as novelty-destroying with respect to claims 1-6, 15 and 16. Specifically, the Examiner considered the trifluoropropyl trimethoxysilane of JP '356 to be within the scope of the claimed perfluoroalkyl group-containing compound in view of the

description at page 19, lines 8-13 of the specification. Specifically, the Examiner understands “trifluoropropyl trimethoxysilane” to be trifluoromethyl-ethylene trimethoxysilane where trifluoromethyl is a “perfluoroalkyl group” per Applicants’ definition in the specification.

As to the various rejections under 35 U.S.C. § 103(a), the Examiner considered that it would have been obvious to substitute the perfluoroisopropyl group of either of Ishida ‘289 (citing paragraph [0015]) or Furusawa (citing paragraph [0020]) as the trifluoromethyl group of the trifluoropropyl group of the first self-organizational film of Ishida ‘356, the results of which are said to be predictable to one of ordinary skill. Specifically, the Examiner considered that one of ordinary skill would understand that a perfluorinated isopropyl group compared to the trifluoromethyl group would be more non-polar and more lipophilic, so as to allow the conductive material to go to the second thin film and generate an alternating-line pattern.

Katz (EP ‘652) was cited as teaching use of organic semiconductor materials as a functional material for fabricating circuitry, which materials can be bound to fluorinated silane surfaces. The reason for rejection was that it would have been obvious to substitute the organic semiconductor materials of Katz as the functional material of Ishida ‘356. Specifically, the Examiner considered that one of ordinary skill would understand that the organic semiconductor material of Katz would bind to the first self-organizing material (fluoroalkyl silane) instead of bonding to the thiol or amino modified second self-organizing material.

Applicants respond as follows.

In response to the rejection under 35 U.S.C. § 102(b), claim 1 has been amended to exclude the trifluoropropyltrimethoxysilane of JP ‘356 from the scope of the fluorine compound (a) now defined as having a specific structure where R_f is a branched perfluoroalkyl group having 3 to 5 carbon atoms.

In response to the rejections under 35 U.S.C. § 103(a), Applicants respond as follows.

Each of Ishida (JP 2002-023356), Ishida (JP 2001-284289), Furusawa (JP 2001-284274) and Katz (EP 1041652) does not describe or suggest the compounds (a) to (f) defined in the amended claims. For example, trifluoropropyltrimethoxysilane (usually, $\text{CF}_3\text{CH}_2\text{CH}_2\text{Si}(\text{OCH}_3)_3$) described in Ishida (JP 2002-023356) and Ishida (JP 2001-284289) does not correspond to any of the compounds (a) to (f). Trifluoropropyltrimethoxysilane cannot satisfy the chemical formulas (for example, Rf-A-SiX_3 , Rf-O-A-SiX_3 or Polymer-D-SiX_3) as defined in amended claim 1. The CF_3 group in the trifluoropropyltrimethoxysilane is a perfluoroalkyl group which does not correspond to the Rf group of compound (a) as defined in amended claim 1.

Each of Ishida (JP 2002-023356), Ishida (JP 2001-284289), Furusawa (JP 2001-284274) and Katz (EP 1041652) does not describe or suggest that the anisotropic material comprising at least one fluorine-containing compound selected from the group consisting of the compounds (a) to (f) can achieve the objects of the present invention such as enabling the production of an anisotropic material having an alternating-line pattern structure by a simple process of applying an organic solvent liquid (see page 3, line 10 to page 4, line 5 of the specification).

Further, there is no motivation to combine the subject references in the manner suggested by the Examiner. Specifically, there is no apparent reason to substitute the trifluoromethyl group (disclosed in Ishida '356) with the perfluoroisopropyl group (disclosed in Furusawa). There is no apparent reason which would lead one of ordinary skill to make such a substitution. In this regard, Ishida (JP 2001-284289), at paragraph [0015] describes "R has a fluoroalkyl group such as (CH_3) and (CH_2) ". Ishida (JP 2001-284289) does not specify a perfluoroisopropyl group.

Further, the second Declaration under 37 C.F.R. § 1.132 of Masamichi Morita dated May 25, 2009 shows significant advantageous effects of the invention in comparison with Ishida

(JP 2002-023356), Ishida (JP 2001-284289), Furusawa (JP 2001-284274) and Katz (EP 1041652). As noted above, the amendment to claim 1 excludes Comparisons A, B, C and D of the Declaration.

For the above reasons, it is respectfully submitted that the amended claims are neither anticipated nor obvious over the cited references, and withdrawal of the foregoing rejections is respectfully requested.

Withdrawal of all rejections, rejoinder of method claims 7 and 8 and allowance of claims 1-5, 7, 8, 15, 16 and 17 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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